

an amorphous semiconductor material layer ~~affixed~~ to the non-conductive coating.

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<sup>18</sup> 53. (Amended) The device of claim <sup>17</sup> 52, wherein the substrate has a thickness of 0.0005 - 0.005 inches.

<sup>19</sup> 54. (Amended) The device of claim <sup>18</sup> 53, wherein the metallic material comprises aluminum.

<sup>20</sup> 55. (Amended) The device of claim <sup>17</sup> 52, wherein the coating has a thickness less than about 0.005 inches.

<sup>21</sup> 56. (Amended) The device of claim 55, wherein the coating comprises an epoxy coating.

<sup>21</sup> 57. (Amended) The device of claim <sup>17</sup> 52, wherein the semiconductor material comprises amorphous silicon oxide.

<sup>22</sup> 58. (Amended) The device of claim <sup>21</sup> 57, wherein the amorphous silicon oxide is doped with an ion to increase conductivity.

<sup>23</sup> 59. (Amended) The device of claim <sup>17</sup> 52, wherein the semiconductor material layer has a thickness of 1 - 5 microns.

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<sup>25</sup> ~~61~~. (Amended) A device comprising:

a single substrate, the single substrate being of sufficient flexibility to undergo roll-type processing, the single substrate comprising an annealed, preshrunk polymeric material;

a surface morphology-improving coating affixed to a surface of the single substrate, wherein the coating is a non-conductive coating; and

an amorphous semiconductor material affixed to the coating.

<sup>26</sup> ~~62~~. (Amended) The device of claim <sup>25</sup> ~~61~~, wherein the polymeric material comprises one of a polyester, polycarbonate, and polyimide material.

<sup>27</sup> ~~63~~. (Amended) The device of claim <sup>25</sup> ~~61~~, wherein the coating has a thickness less than about 0.005 inches.

<sup>28</sup> ~~64~~. (Amended) The device of claim <sup>25</sup> ~~61~~, wherein the semiconductor material comprises amorphous silicon oxide.

<sup>29</sup> ~~65~~. (Amended) The device of claim <sup>27</sup> ~~64~~, wherein the amorphous silicon oxide is doped with an ion to increase conductivity.

<sup>30</sup> ~~66~~. (Amended) The device of claim <sup>25</sup> ~~61~~, wherein the semiconductor material layer has a thickness of 1 - 5 microns.

<sup>24</sup>~~67~~. (Amended) The device of claim <sup>17</sup>~~52~~, wherein the device comprises an electrochemical testing device, the device further comprising a reagent capable of reacting with an analyte to produce a measurable change in potential, and at least one electrode formed on the surface coating.

D<sub>4</sub>  
<sup>31</sup>~~68~~. (Amended) The device of claim <sup>25</sup>~~61~~, wherein the device comprises an electrochemical testing device, the device further comprising a reagent capable of reacting with an analyte to produce a measurable change in potential, and at least one electrode formed on the surface coating.

*Please add new claims 69-83, as follows:*

D<sub>5</sub>  
<sup>32</sup>~~69~~. (New) An electrochemical test device for determining the presence or concentration of an analyte in an aqueous fluid sample, said electrochemical test device comprising:

a substrate, the substrate consisting of a single layer of flexible material, the flexible material having sufficient flexibility to undergo roll-type processing;

a non-conductive coating affixed to one side of the substrate;

a working electrode comprising an amorphous semiconductor material affixed to the non-conductive coating, said working electrode having a first electrode area, a first lead and a first contact pad;

a counter electrode comprising an amorphous semiconductor material affixed to the non-conductive coating, said counter electrode having a second electrode area, a second lead and a second contact pad; and

a reagent capable of reacting with the analyte to produce a measurable change in potential which can be correlated to the presence or concentration of the analyte in the fluid sample, said reagent overlaying at least a portion of the first electrode area of the working electrode.

<sup>33</sup>  
~~70~~. (New) The device of claim ~~69~~<sup>32</sup>, wherein the non-conductive coating has a thickness sufficient to fill surface valleys on the substrate.

D<sub>5</sub> <sup>34</sup>  
~~71~~. (New) The device of claim ~~70~~<sup>33</sup>, wherein the thickness is less than about 0.005 inches.

<sup>35</sup>  
~~72~~. (New) The device of claim ~~69~~<sup>32</sup>, wherein the non-conductive coating comprises an epoxy coating.

<sup>36</sup>  
~~73~~. (New) The device of claim ~~69~~<sup>32</sup>, wherein the semiconductor material comprises amorphous silicon oxide.

<sup>37</sup>  
~~74~~. (New) The device of claim ~~73~~<sup>36</sup>, wherein the amorphous silicon oxide is doped with an ion.

<sup>38</sup>~~38~~ (New) The device of claim <sup>32</sup>~~69~~, wherein the flexible material comprises a metallic foil having a thickness of 0.0005 - 0.005 inches.

<sup>39</sup>~~39~~ (New) The device of claim <sup>32</sup>~~69~~, wherein the amorphous semiconductor material has a surface texture less than 0.33 microns.

<sup>40</sup>~~40~~ (New) An electrochemical test device for determining the presence or concentration of an analyte in an aqueous fluid sample, said electrochemical test device comprising:

D5 a single substrate, the single substrate comprising a layer of flexible material, the flexible material having sufficient flexibility to undergo roll-type processing;

a non-conductive coating affixed to a side of the single substrate, the non-conductive coating having sufficient thickness to fill surface valleys of the single substrate thereby providing improved surface flatness relative to the substrate;

a working electrode comprising an amorphous semiconductor material affixed to the non-conductive coating, said working electrode having a first electrode area, a first lead and a first contact pad;

a counter electrode comprising an amorphous semiconductor material affixed to the non-conductive coating, said counter electrode having a second electrode area, a second lead and a second contact pad; and

a reagent capable of reacting with the analyte to produce a measurable change in potential which can be correlated to the presence or concentration of the analyte in the fluid

sample, said reagent overlaying at least a portion of the first electrode area of the working electrode.

<sup>41</sup> 78. (New) The device of claim <sup>40</sup> 77, wherein the thickness of the non-conductive coating is less than about 0.005 inches.

<sup>42</sup> 79. (New) The device of claim <sup>40</sup> 77, wherein the non-conductive coating comprises an epoxy coating.

D<sub>5</sub> <sup>43</sup> 80. (New) The device of claim <sup>40</sup> 77, wherein the semiconductor material comprises amorphous silicon oxide.

<sup>44</sup> 81. (New) The device of claim <sup>43</sup> 80, wherein the amorphous silicon oxide is doped with an ion.

<sup>45</sup> 82. (New) The device of claim <sup>40</sup> 77, wherein the flexible material comprises a metallic foil having a thickness of 0.0005 - 0.005 inches.

<sup>46</sup> 83. (New) The device of claim <sup>40</sup> 77, wherein the amorphous semiconductor material has a surface texture less than 0.33 microns.

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